

Historic, Archive Document

Do not assume content reflects current scientific knowledge, policies, or practices.

APR 12 1908

LIBRARY
RECEIVED
APR 21 1908

U. S. Department of Agriculture
No. 7

VOL. XIV

APRIL, 1908

The Agricultural Student

SHEEP NUMBER



A Monthly Magazine

DEVOTED TO AGRICULTURAL EDUCATION

10 cents per copy

50 cents per year

FAR AHEAD OF ALL COMPETITORS
The IMPROVED 1908

**UNITED STATES
CREAM SEPARATOR**

**Is surely in a
CLASS BY ITSELF**

The Improved 1908 U. S. Separator has met with such favor everywhere it has been used that people who have purchased other makes not uncommonly say, "Had I seen your separator first, I would not have purchased the separator I did."

Now, be sure (all you who are anticipating purchasing separators), you do not have this to regret when it is too late and you have parted with your good dollars.

Read below what Ex-Governor C. J. Bell of Vermont says about one of our new style machines he uses.

The new pattern of U. S. Separator I have been using the past few months is a complete machine. It is low down, runs very easy, skims clean, wears well, no repairs or changes to be made, cleans easy, in fact it runs like a top. All the farmer must do is milk the cows and take care of the cream, which is in elegant condition for any purpose.

I forgot to say it is the stillest running machine I have ever used.

C. J. BELL,

East Hardwick, Vt.



Write today for our Illustrated Catalog No. 9

Address all letters to the

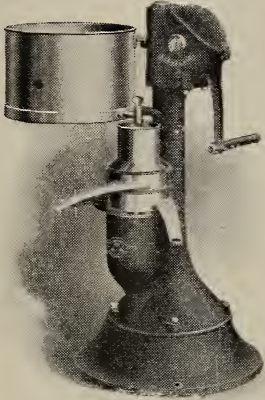
Vermont Farm Machine Co.

Bellows Falls, Vt., U. S. A.

Distributing warehouses at: Chicago, Ill., La Crosse, Wis., Minneapolis, Minn., Kansas City, Mo., Omaha, Neb., Toledo, O., Salt Lake City, Utah, Denver, Colo., San Francisco, Cal., Spokane, Wash., Portland, Ore., Buffalo, N. Y., Auburn, Me., Montreal and Sherbrooke, Quebec, Winnipeg, Man., Hamilton, Ont., Calgary, Alta. 493

THE AGRICULTURAL STUDENT.

THE CLEVELAND CREAM SEPARATOR THE WORLD'S BEST



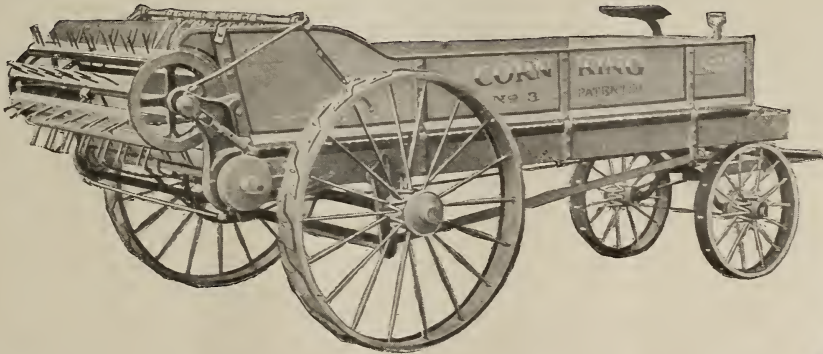
The lowest supply can
The most sanitary
The easiest running
The most durable
The most convenient
The only ball bearing
Separator in the world.

WRITE FOR OUR FREE CATALOG AND FULL DESCRIPTION
Manufactured by

THE CLEVELAND CREAM SEPARATOR CO.

430 to 438 Prospect Ave. N. W.

CLEVELAND, OHIO.



In nearly every farm neighborhood you will hear of some certain farm being no good, because it is worn out or run down.

Of course, this is not the case in newly-settled farming sections, but it will be heard there in a short time if proper fertilization is not practiced.

There is no reasonable excuse for letting a farm become depleted, for farm manure properly applied will keep the soil highly productive. You can apply it properly with I. H. C. manure spreaders, for these machines will tear and finely pulverize the coarsest manure or rotted cornstalks.

The I. H. C. spreaders are the Corn King and Kemp Twentieth Century (return apron machines), and the Cloverleaf (an endless apron machine), each made in a number of sizes.

It will pay you to call on the local agent who will explain why an I. H. C. spreader is the best on the market, and he will also supply you with catalog, or if you prefer, write for catalog, colored hanger and booklet, "A Wasteful Farm Practice."

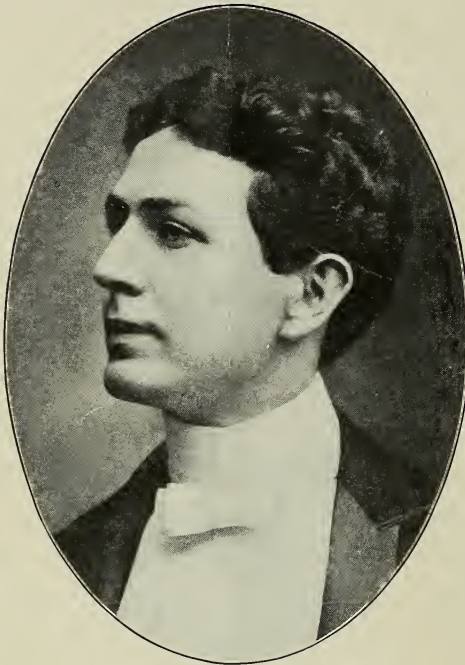
INTERNATIONAL HARVESTER COMPANY OF AMERICA
(INCORPORATED) CHICAGO, - - - U. S. A.

SEASON 1907-8

To Those Who Neglected to Learn to Dance:

Prof. W. J. Rader's Academies of Dancing

Will organize beginners classes in the new year:



High St. Academy

199½ S. HIGH ST.

Phones: Auto 3456; Bell 5877

Will organize a beginner's class Friday evening, April 24th, 7:30 o'clock.

Neil Ave. Academy

647 NEIL AVE.

Phones: Auto 4431; Bell 6189

Will organize a beginner's class Tuesday evening, April 21st, 7:30 o'clock.

Oak St. Academy

827 OAK ST.

Phones: Auto 4431; Bell 6189

Will organize a beginner's class Tuesday evening, January 7th, 7:30 o'clock.

Winter Pavilion

Located on Neil Ave. between Goodale St. and Poplar Ave. Open Tuesday, Friday and Saturday evenings.

Operated on Summer plan.

TUITION

Gentlemen, per term of 10 lessons.	\$5.00
Ladies, per term of 10 lessons ...	3.00
Private lessons \$1.00 per lesson ...	
6 lessons.....	5.00

Tuition can be paid \$1.00 per week until paid. The Waltz, Two Step, Three Step, Rye Waltz, Columbus Minuet and Dip Schottische taught in one term.

ACADEMIES AND PAVILION CAN BE SECURED FOR PRIVATE PARTIES, CLUB DANCES, FRATERNITY HOPS, ETC.

THE AGRICULTURAL STUDENT.



Guerr's Academies of Dancing

GAY AND HIGH STREETS

Office: Bell 1151; Citizens 3067.

Regular Receptions Tuesday and Friday evenings.

Private Lessons any time by appointment.

Per Lesson \$1.00; Six for \$5.00

Juvenile Class Saturday from 2 to 4.

FRONT STREET ACADEMY

Between Broad and Gay Sts.

Regular Receptions Wednesday and Saturday Evenings

WARREN W. GUERR

Principal and Proprietor

ADAPTABLE POWER

That is one of the important considerations when purchasing a power.

When you buy an I. H. C. gasoline engine you get maximum adaptability for shop, farm or mill use.

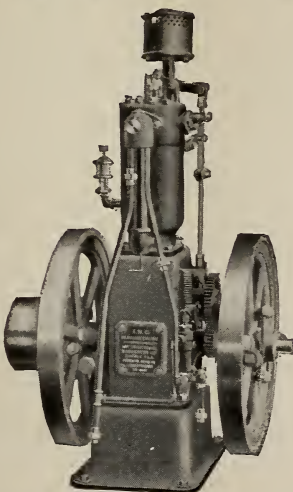
Note the completeness of this line—an engine for every purpose.

Vertical, 2 and 3-horse power.

Horizontal (Portable and Stationary), 4, 6, 8, 10, 13, 15 and 20-horse power.

Traction, 10, 12, 15 and 20-horse power.

Air cooled, 1-horse power.



Sawing, spraying, and pumping outfits and jacks.

But you get more than adaptability when you purchase an I. H. C. engine. You get maximum reliability, economy and convenience.

The design, construction and rigid factory test guarantee this.

What more can you demand in a power?

Call on the nearest local agent. He will demonstrate I. H. C. engines and give you catalog and full particulars, or if you prefer write for colored hanger and booklet, "300 Years of Power Development."

INTERNATIONAL HARVESTER COMPANY OF AMERICA

CHICAGO,

(INCORPORATED)

U. S. A.

THE AGRICULTURAL STUDENT.

YOU ARE INVITED TO VISIT

BAKER ART GALLERY

STATE AND HIGH STS.

For the FINEST Photos

The only Gold Medal awarded an American Photographer
at the Paris Exposition

Special Rates to Students

If you saw it in THE STUDENT, tell the advertiser so

HIGH STREET TAILORS

We make a specialty of

Student Trade

We're at your
Service, Sir!

Our Cutters and staff of Tailors
are now ready for your order.

High Street Tailors

166 N. HIGH STREET

Rooms 518-522, Columbus
Savings & Trust Bldg.
Cor. Long and High Streets



Popular Prices

THE 
ORR=

199-201 South High Street

Artistic

Awarded highest honors
National Association of
Photographers

MARK OF



QUALITY

KIEFER
STUDIO

Citizens Phone 3720

Photography

Special Rates to Students.

GROUP PICTURES
A SPECIALTY

Our Advertisers are Reliable. Patronize them.

CONTENTS.

April, 1908.

	Page
Cover Illustration—Cheviots	
Frontispiece—Beauty and Utility Combined.....	2
Sheep Lore—	
Joseph E. Wing	3
The Sheep Industry—	
R. H. Williams.....	5
What the Government is Doing for the Sheep Industry—Prof. E. T. Shaw.....	7
Hothouse Lambs—	
H. P. Miller	9
Literature on Sheep—	
Prof. C. S. Plumb	10
The Delaine Sheep as a Money Maker—	
Geo. M. Wilbur	12
Editorial Page	18
News Items	19

Published Monthly by
THE AGRICULTURAL SOCIETY
of Ohio State University

Terms of Subscription:

One Year.....	\$0 50
One-half Year.....	30
Single Copies.....	10

Entered at the Post-Office, Columbus, Ohio, as second-class matter



Beauty and Utility Combined

THE AGRICULTURAL STUDENT.

VOL. XIV

OHIO STATE UNIVERSITY, COLUMBUS, APRIL, 1908

No. 7

SHEEP LORE

Joseph E. Wing

Associate Editor of The Breeder's Gazette

The history of the sheep is written only in its frame, embroidered in its wool, or imprinted in its mental characteristics. The history of the sheep is in large part the history of the human race. Hardly any animal in the world has been so modified by association with man as has the sheep. Its ancestor is unknown and probably is extinct. There is, so far as known, no long-tailed breed of wild sheep, nor, so far as known, any wild breed that will interbreed and make fertile crosses with our domesticated sheep. Can one imagine what the primal wild sheep was like? Maybe the Scottish blackface sheep give a clue; they are wild, hairy, active, having much the habits of deer, with strong instinct and ability to care for themselves. The little Herdwicks are like them, even wilder, with coarse, stiff, hairy wool and with instincts too much for wild Nature, who tries in vain to snow them under on the mountains of Cumberland and Westmoreland. Maybe these are like the original wild sheep, which must have come first from the mountains.

One might easily guess that sheep had descended from two distinct breeds were it not that they readily

interbreed and make fertile crosses; yet there is such marked difference between the horned sheep of northern mountains and the polled, bald, woolless, roman-nosed sheep with long, drooping ears found in parts of Asia and hotter Africa. Probably all came from one and the same ancestral tree, after all, and the marvelous divergence in type is only another reminder of the very great age of the world and the very long time that men have been civilized and have cared for domesticated animals.

In truth, what changes have been wrought in sheep! Once active, hardy, able to escape wolves and even panthers in some way or another, they are now prey to even small dogs—that is, most breeds are. There are some hardy breeds that yet retain enough of the aboriginal spirit to make them put up some show of fight, but none can run as they no doubt once could run. Once coated with sufficient woolly hair to protect them from the cold, they are now burdened with prodigious fleeces, the very weight of which bears them down. Withdraw from the sheep of the world man's protecting hand, what would be the condition of things in ten years?

There would be probably a few flocks of Cheviots, some Dorsets, maybe; perhaps some Welsh mountain sheep, some Herdwicks, and doubtless some Scottish Blackfaces. No Merino would survive; the Southdowns might—who knows? But nearly the entire sheep population of the world would be swept out of existence in a very few years was man's protecting hand withdrawn.

How much has the sheep improved within historic times? No one knows. Women wove fine woolen apparel in the most remote days of history. Before history was written women wove fine woolen apparel. Doubtless the sheep now shears a far heavier fleece than it did then. Doubtless the form has been helped by selection. Within a century the finishing touches have been given. Has the end come? Very nearly, in the judgment of the writer. Already there is a turning backwards by practical breeders who make mutation. The Shropshire, most perfect of breeds, is losing favor in Shropshire land, and Kerry Hill sheep are said to be displacing them as farmers' flocks kept as market flocks solely. The Kerry Hill sheep are not nearly so handsome as the Shropshires, but they have been kept for hardiness, good feeding and suckling habits. So it goes. Breeds reach "perfection;" they receive fine finish; through inbreeding or some other defective mating they lose in stamina and hardiness; then the neglected breeds come to the top again.

But how much has the sheep and the shepherd changed since history was written? Hardly have they changed at all. Once a young man, Egyptian, born of desert heritage, fled from an Egyptian city, from police and officers of the law; out into the desert

he fled, and at last reached a ranching country, with many sheep in small bands and many shepherds. Beside a well of water he sat and brooded his fate and wondered what the future had in store for him. As the sun dropped low over the yellow desert hills little flocks came in to the well to water; came from right, from left, from in front of you and from behind you. Each little flock had its shepherd. Some were lads, some men near grown, with yet the soft, furry beards that first come to youth's cheeks. They approach the well, and each one draws water and pours in the stone trough, while his parching flock draws near, and eagerly the sheep slake their thirst. Some girls draw near; one tall, almost a woman grown, yet with timid, hesitating, girlish grace; the other younger, more slender; each one bearing rich color in face and arm, browns that deserts love, reds that hint of wild desert bloom, eyes that are like quiet pools under overhanging rocks. Their sheep follow them eagerly; they take their place and begin drawing water. When only a few have slaked their thirst come other shepherds. Strange, selfish, piggish young men and half grown boys, in whose breasts as yet has not awakened the flame that love kindles, they see naught in the two girls but rival sheep tenders. They drive away their flocks; they rudely take away the rope and water bucket; they hurl coarse, unfeeling jest and ribald remark. The girls, ashamed and affrighted, are about to go away, leading their reluctant flock, but the tall Egyptian stranger sees it all. He arises, comes forward with easy grace and courage; he bows to the girls, speaks one word of comfort,

(Continued on page 17.)

THE SHEEP INDUSTRY

R. H. Williams

Assistant in Animal Husbandry, Ohio State University

On every side we meet men who vie with themselves in an effort to set forth in glowing words, the number, value and importance of the horse, cattle and hog industries, but the meek sheep lacks writers or enthusiasm to write her praise. The history and evolution of the our woolies is as full of romance and change as that of the human race with which they have been most intimately associated. The powerful influence of nature and the will of man early commenced to adapt sheep to meet the needs of mankind. Records show us the milk, the skin, the wool, and the meat and wool stages in the evolution of the sheep. This last stage is only the development of the last fifty years, and present tendencies point towards a mutton era.

Few people realize that the sheep industry is one of the most important branches of live stock that concerns the average farmer. Statistics show that there are practically as many sheep in the world as the combined number of horses, mules, cattle and swine. The following table is compiled from United States statistics, and gives the number of sheep and the percentage of sheep to the total live stock of the various continents:

Continent	Number of Sheep	Percentage of Sheep to Total Farm Animals
Europe	188,000,000	44%
South America	143,000,000	61%
Oceania	94,000,000	88%
Asia	91,000,000	40%
North America	60,000,000	25%
Africa	34,000,000	72%
Total	610,000,000	48%

The six hundred and ten millions of sheep are distributed somewhat unevenly among the nations of the earth. In point of numbers, the Argentine Republic comes first, with 120,000,000; Australia and New Zealand second, with 90,000,000; Russia third, having 80,000,000, and Turkey and the United States about equal in the fourth place, with 55,000,000 of sheep each.

No attempt will be made to point out the importance of sheep to the various countries. The reader cannot help but notice that sheep are relatively much more important in all other continents than in North America. We are mostly interested in the nine per cent. of the world's sheep which are found in the United States. This country markets yearly a band of sheep large enough to reach around the earth if placed end to end in a line. Over half a million tons of mutton and quarter of a billion pounds of wool are produced every year in our country. Annually we import fifty million dollars worth of wool to keep our factories busy and to clothe us. Besides all this the sheep industry in America is only made possible by billions of dollars of capital and thousands of laborers engaged in the production, transportation, marketing and preparing the various sheep products for use.

Ohio has occupied a very important place in American sheep husbandry for many years. Our soil, climate, location and people are peculiarly adapted to sheep. Today we have the third highest valuation of any of the states.

next to Montana and Wyoming, and easily stand ahead of any of the eastern, southern or middle western states. Ohio wool and Ohio lambs have long received a premium for being the best of their kind of the market. It has been said that the Buckeye states owes a goodly share of her prosperity to the animal with the traditional golden hoof.

In a general way we may say that there are three sources from which we may derive income from sheep. These are: First, the production of wool; second, the production of mutton, and third the production of wool and mutton combined. Usually the wool and the manure will cover the expense of maintaining the flock, so we can simplify matters by saying the ways of making profits from sheep are: First, the production of "hot house" lambs; second, raising lambs to market under one year, and third, winter feeding of western sheep and lambs.

The present tendencies point to a reduction in the sheep feeding business. The west is producing more alfalfa and fewer lambs every year. In the corn belt, alfalfa and clover are coming into favor. Nobody can feed lambs more economically than the man who grows them, whether it is in Ohio with \$12 per ton alfalfa, or in Montana or Washington with \$4 alfalfa.

Probably the sheep industry in the future will be a straight lamb proposition with as much good wool as possible to provide a guarantee for keeping the ewe flock. The hot house lamb and the late fall and winter marketing of spring lambs will continue to be prominent features of the sheep business, but each year there will be more March lambs that are marketed during June and July, before the hot, sultry,

summer weather comes to check growth. Careful feeding and management of the ewes and lambs during four months will produce better lambs and more net returns than the old fashioned method of keeping the lambs six to twelve months. The man who keeps books and knows what his sheep are doing, does not think of keeping lambs for one, two, three or more years for the wool alone. He has found out that the ewe that will raise a good mutton lamb and a good fleece will make much more net profit than the wether.

The question might be raised, "Do sheep pay in Ohio?" As near as one can size up the situation, sheep have paid, are paying and will pay in Ohio. "Nothing succeeds like success," so sheep must have been remunerative or else farmers would liquidate instead of increase their sheep holdings.

Moreover, another interesting fact revealed by statistics is that those states where land is the highest in value are increasing their flocks, while the greatest reduction is being made in the flocks on cheap lands. We have abundant proof that there is usually more money to be made out of lamb raising than in steer raising. Laws and Gilbert, in England, Curtiss, Craig and thousands of others in America have proven this same truth. A common saying in the west is, "Sheep have run the cattle off the ranges," and it might be added, "because they are more intensive and greater money makers."

During the past few years sheep have steadily grown in favor in America. Many factors have combined to bring about this popularity, but none has been more potent than education. While the producer was learning how to produce better and cheaper wool and mutton with greater net profit, the consumer was educating

himself to become fond of the wholesome, toothsome and nutritious mutton. The future has much in store in the way of useful education for the farmer engaged in the sheep business. It is generally agreed that our Ohio wool is not well and neatly prepared for market, thus bringing two to five cents less per pound than it should. If we could increase the value of wool one cent per pound by more careful production, grading and neater packages, it would add over \$100,000 net to the sheep farmers of our state and over a million dollars to the farmers of America. The matter of bookkeeping on the farm, co-operation, improved methods of farming, breeding, feeding, reading, preparing for market and marketing at the most seasonable time will elevate the farmer from a man with a "job" to a man with a high calling worthy of the best moral, intellectual or financial effort.

Although the sheep industry has had its ups and down, yet the present outlook is bright enough to attract the capital and exertions of the most conservative farmer. Indeed many farmers be-

lieve that they cannot afford to run a farm without a flock of sheep which will utilize space and waste food which otherwise would not only be lost, but would become unsightly. The world's supply of wool and mutton is probably shorter than it has been in many decades. Today there are only about half as many sheep per capita in the world as there was twenty-five years ago. During the last quarter of a century, in the United States, horses have increased 90 per cent., cattle 70 per cent., swine 30 per cent., while sheep have increased only 12 per cent. In the past twenty-five years the consumption of mutton has increased 500 per cent., and if the same rate of increase continued for the next ten years without a great increase in production, sheep will be very scarce and wool and mutton raising should be remunerative. The past few years have seen a steady increase in the price of sheep products. The demand is in excess of the supply and this should guarantee profit and success to the sheep industry for some time to come.

WHAT THE GOVERNMENT IS DOING FOR THE SHEEP INDUSTRY

Prof. E. T. Shaw

Bureau of Animal Industry

After making a careful study of the present system of breeding upon the ranges of the West and realizing the importance of the sheep industry, the government has taken up the study of breeding range sheep. The experiment was planned during the year of 1906 and is being carried on in co-operation with the Wyoming Experiment Station, Laramie, Wyo. The object of the experiment is the develop-

ment of a type of sheep which shall be hardy on the range, stand flocking in large numbers, shear a good fleece of wool, be of fair size and have a good mutton form.

It was agreed by those conducting the experiment that the foundation stock should be of a large-bodied, fine-wool type, the reason for such a decision being that fine-wool sheep predominate over the entire range coun-

try, and are, in fact, the foundation of the range sheep industry. In order to secure the type of sheep desired in the experiment, fine-wool blood must be used. Many of the fine-wool ewes upon the ranges are deficient in size and in mutton form, and breeders who run fine wools have to use rams of the mutton breeds to produce lambs for the market. For crossing upon the fine-wool ewes for market lambs we find a large number of Cotswold, Lincoln, Shropshire, Hampshire, Rambouillet and Oxford rams being used. The Rambouillet has been considered by many to be the ideal range sheep, and owing to this fact this breed has made wonderful progress during the past few years, and today many excellent flocks are found in the range states. Rambouillet rams have been in great demand for use on the ranges, and for several years the Eastern breeders have enjoyed a good trade for their rams for the West.

The present breeding flock consists of 250 ewes and six rams. The ewes are mostly of Rambouillet blood, a few, however, being high-grade Delaines. In

selecting the foundation flock of ewes, a definite type was clearly kept in mind, and the ewes were selected from the leading range flocks in the states of Nebraska, Wyoming, Utah, Idaho, Oregon, Washington and California. Six pure bred Rambouillet rams were selected for breeding upon the 250 ewes. These rams were of the best mutton type of Rambouillets that could be secured and were selected from the leading flocks of Ohio, Michigan and Washington.

The ewes at the beginning of the breeding season were carefully divided into six lots, and each lot was mated with the ram thought best adapted to produce the type of lambs desired. Careful records are kept of the birth weights of all the lambs, the breeding and development. Samples are taken of all fleeces at shearing time, noting the length, quality and condition of wool.

The sheep are running upon a range near Laramie, and the experiment is being carried on under range conditions.



30 Ewes in Government Experiment, Laramie, Wyo.

HOTHOUSE LAMBS

H. P. Miller

Secretary Ohio Sheep Breeders and Wool Growers Association

Hothouse lambs are a delicacy for the wealthy. They are in the meat list what green peas are in the vegetable at Christmas. It refers to lambs marketed at about ten weeks at age from Christmas on through the winter. At the opening of the season a lamb that weighs twenty-eight pounds, as dressed, meets requirements, but as the season advances a weight of thirty-three to thirty-five pounds is wanted.

The New York market is the principal one for this product. It wants them in the form known as caul dressed. The pelt is left on; sticks about eighteen inches long are put across the back from breast to flank, crossing each other just over the kidneys, thus spreading the body, which is opened from tail to head, the head being removed. The caul fat is carefully stretched over the hindquarters and exposed surface of the body, being held in place by small skewers.

The lambs are allowed to cool thoroughly, then wrapped in new muslin, three-quarters of a yard being required for each lamb. They go through in better shape when sent in crates, four in each. The best system of marketing seems to be through commission men, who charge 5 per cent. upon sales.

October and November are the months in which the lambs should be yeaned to meet the best market. There are only three breeds that will yeam with any uniformity in those months, Dorsets, Tunis and Merinos. The former two breeds are so few in numbers that Merinos are very gen-

erally used, though not producing quite so good a lamb as the others. Mutton sires are in every instance employed. Those with least wool, other things equal, are preferable as the lambs do not show so old. It is important that the lambs be gotten to the desired weight at as early an age as possible, and that they have a heavy caul fat.

Grain feeding of the ewes at breeding time will hasten the mating. It is very important that the ewes be fat at the time of yeaning. If the ewes are thin at this time there is very little prospect of making prime lambs. High feeding throughout is the secret of success. In my own experience corn silage has proved a most satisfactory basis for the ration. They must be supplemented just as it should be for a cow. Alfalfa, clover or soy bean hay with some protein concentrate makes the cheapest good ration that I have found. At present prices cotton seed meal is the cheapest concentrate obtainable. The lambs should have access to grain from two weeks of age. If they have alfalfa or clover hay, as they should, corn should be the principal grain fed; a little wheat and bran or oil meal should be added. It is better to replace the feed three times a day, removing that remaining, than to use a self feeder. Cabbage makes a valuable relish for the lambs. Soy beans are excellent when fed in moderation. A feed or two a day of cow's milk will help a lamb into market condition that does not get enough from its mother.

Success in this business calls for the highest skill in shepherding.

LITERATURE ON SHEEP

Prof. C. S. Plumb

Professor of Animal Husbandry, Ohio State University

The literature on sheep is not so extensive as with other classes of domestic animals. Very little was written early in the last century, and but comparatively few books have been exclusively devoted to sheep.

Wm. Youatt, one of the most versatile and able of the British authors on farm animals, wrote a work entitled "Sheep," which was published in 1837 in London. This for many years was a recognized standard, and even today it contains much of historical value, for Youatt was a real student and had an immense fund of knowledge at his command.

"The American Shepherd," by L. A. Morrell, was published in New York in 1846, and is one of the very best of our early American works on sheep. This deals with the history of the breeds, management, treatment of diseases, etc. It contains a few illustrations, mainly reproduced from Youatt's work.

Among American authors on sheep in the nineteenth century none exerted so wide an influence as Henry S. Randall. In 1863 he brought out his well known work, "The Practical Shepherd," which has had a very wide circulation and has been published in many editions. Randall had been a prominent man in New York life, and was a man of distinction. He also wrote a work on "Sheep Husbandry in the South," which was of considerable merit.

"The Shepherd's Manual," by Henry Stewart, a noted agricultural writer and for years a prominent agricultural editor and author, was long a standard

on sheep husbandry. In 1898 he revised this work in a way, and a new volume, "The Domestic Sheep," was published for him by The American Sheep Breeder press, at Chicago. This volume, however, is unfortunately unindexed, and one must hunt for information in its pages.

In 1899 Dr. Wm. A. Rushworth published a book of 496 pages on "The Sheep," which largely dealt with the anatomy of sheep and diseases and their treatment.

Among English works on this subject, "Sheep: Breeds and Management," by John Wrightson, is one of the best. This is No. 1 of the valuable series of "Live Stock Handbooks" published by Vinton & Co., of London. Wrightson was for years principal of the College of Agriculture at Downton, England, and a noted breeder of Hampshire sheep.

Comparatively recently two books of special interest on sheep have been published. "Sheep Farming in America," by Joseph E. Wing, was published by the Sanders Publishing Co., of Chicago, in 1905. "Joe" Wing is well known, not only at Ohio State University, but generally over the country as an authority on sheep. His book is well illustrated and contains much valuable information.

"Modern Sheep: Breeds and Management," by "Shepherd Boy" (W. J. Clarke), is the last volume to come from the press on this subject, it being published in 1907. Mr. Clarke is associate editor of The American Sheep Breeder and is a man of intimate and extensive knowledge along sheep

lines. He may be regarded as one of the best posted students of sheep before the public today. This volume contains nearly 350 pages, is attractively illustrated and deals extensively with the history of the breeds, general management, diseases, pastures, forage crops, etc. In 1900 Mr. Clarke also published an interesting little volume on "Fitting Sheep for Show Ring and Market."

One other very important volume on sheep should be here mentioned, viz, "A Special Report on the History and Present Condition of the Sheep Industry of the United States." This is a large volume of 1000 pages, published in 1892 by the Bureau of Animal Industry of the United States Department of Agriculture, and was written by various persons under the direction of Dr. Salmon, chief of the

bureau. It is largely illustrated and contains a mass of information on the development of sheep husbandry in the different states of the country. This volume has a special value to the student in search of historical information.

On the subject of sheep literature, more might be written on other books published, but space here will not permit, and the more important volumes have been referred to. Two sheep journals are worthy of note, however. The American Sheep Breeder, published at Chicago, is now in its twenty-eighth volume. It is the leading sheep journal of today and has a circulation all over the world. It is beautifully illustrated, is well edited and has among its contributors the leading sheep men of America and the Eng-

(Continued on page 17.)



A Choice Southdown Ram.

THE DELAINE SHEEP AS A MONEY MAKER

Geo. M. Wilbur

Address before the American Merino and Delaine Record Association, 1908

In modern history the first knowledge we have of consequences bearing on the foundation of our present flocks is the importance of African sheep to Spain, where for generations they were bred principally for wool, and from which wool, because of its fineness, was used to provide the purple robes of royalty and from which flocks were developed the Spanish Merino, which in turn became the foundation of our present day flocks of Merinos, Delaines, Rambouillets and so-called "Black Tops" and "Francos."

Now, I am not offering this history so much for the information it contains, because you are perhaps more familiar with that than myself, but for the purpose of laying a foundation for some things which I may hereafter have to say regarding some methods of breeding which I would suggest to be advisable and very much to the interest of the Merino and Delaine breeders of America.

It is the dream of the deep thinking, broad-minded student of the situation to produce the breed or kind of sheep which will produce in one and the same individual the best mutton carcass, covered with the heaviest fleece of long staple of the highest priced wool. According to nature's laws, this Utopian dream will never be reached, but a closeness may be obtained and is gradually being obtained and will be nearer reached as the years go by under the intelligent breeding of such men of evolution as yourselves, who

have done so much to approach that type in the production of the champion shorthorn steer type of body, covered with long, white or slightly yellow cast wool, and which you call a Delaine sheep.

No one will for one minute deny that the typical mutton sheep, unapproachable almost, is the little South-down, but because of the fact that he has very little wool to recommend him he is not the most profitable by any means as a money maker compared with the Delaine, because it is too much like feeding the steer; he has too little wool to help out if the prices go down, and had better have more wool if they go up.

In a recent address I compared the feeding of ten wethers, weighing 100 pounds each, which cost the same as one 1000-pound steer when put into the feed lot. For the steer feeder to stand on equal footing with the sheep feeder he would have to be able to take from the steer's back some commodity which would equal \$20 or more, which would perhaps about average the value of wool taken from the average flock of fat wethers, but less than the amount taken from an average flock of Delaine wethers at present valuation of wool. And still the steer feeder would be at a disadvantage, even if he could market \$20 from the steer's back, because it requires more feed to produce a pound of beef than a pound of mutton.

This comparison, in a measure, an-

swers the many questions asked as to why the Western cattle man is liquidating his herds and replacing with bands of sheep in their stead. It is a well known fact that in the free range country of the woolly West that the individual who is so fortunate as to own or control the water holes practically owns the surrounding country, as the ranging ground is, of course, worthless without water. The cattle and sheep men, each having equal rights to the free government range in that respect, have demonstrated the comparison well, and, while it was the bitterest pill the arrogant cattleman ever had to swallow, he was compelled to accept the inevitable and take up the rôle of the much despised "sheep wrangler" out of sheer necessity to prevent "going broke." All this liquidation of cattle on the range, however, means better prices for cattle in the future, and also a more even sheep market, if possibly a slight reduction in values on the range.

It is my experience that a novice in the sheep business is pretty sure to choose as the kind to suit him some of the mutton breeds, more often the Shropshire or his crosses, one reason for this being their handsome, robust and strong appearance. Other breeds of mutton sheep, of course, have their admirers, and they are all good with proper surroundings and care, and the world needs each and every breed existing, but the mutton breeds will not flourish unless proper conditions exist, which means an abundance of rich herbage and supplementary feed of rich foods in its absence, because, being quick maturing, they cannot stand neglect or over-stocking of grazing land. On the contrary, the Merino breeds, of which the Delaine type of large size is in my opinion the most

profitable and ideal kind for a variety of climate and purposes, being slow to develop and cosmopolitan in its nature, is satisfied with very little, scanty herbage, seeming to be most suitable if large range is provided, capable of enduring much privation, eat and thrive on a greater variety of foods, be profitable years the mutton sheep has outlived its usefulness, acclimated in almost any climate, produce a profitable fleece even at extreme old age, and, in fact, the most all round profitable for general usefulness over a greater area of country and climate than any breed of sheep which at present exists on this earth.

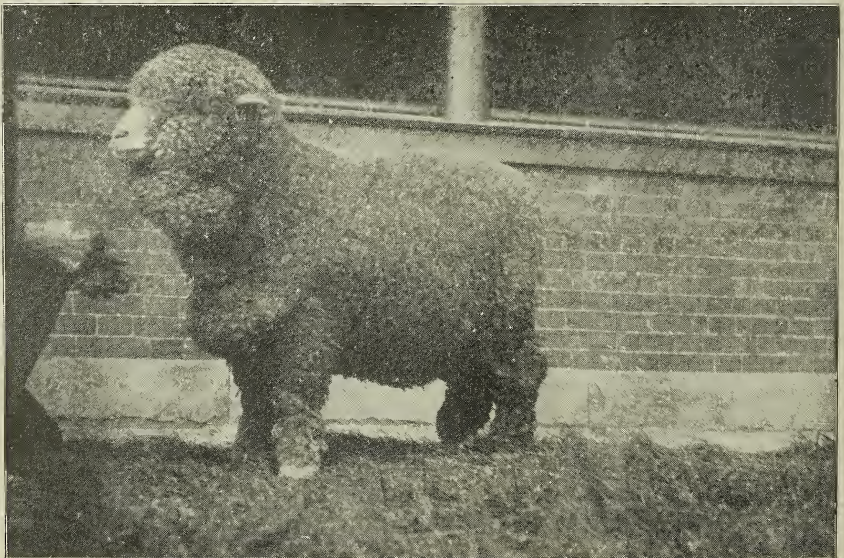
Besides, I have found it has no equal for another purpose, which may be a surprise to many of you—i. e., the production of so-called "hothouse" lambs. Having myself produced (and I beg your pardon) in the past ten years perhaps very much more of this product than any other individual in America, and having utilized for twenty years nearly every breed and their crosses for this purpose, I have been forced to the conclusion that, taking them all around and for all purposes, which include early breeding, easy keeping, production of wool, quality of lambs produced when properly mated to mutton rams, reasonably good sucklers of extremely rich milk, hardiness and length of service, that the great, big, smooth champion steer type of ewes, so-called Delaines, absolutely have no equal.

But remember that I have emphasized the large size and beef type of Delaine all the time, and now I want to strenuously criticize the methods of breeding the Delaines for the general usefulness which I have stated, because, as you know, not being a breeder of full blood stuff and therefore

having no "ax to grind," while at the same time a handler, dealer in and through nearly every state and territory and every principal market north of Mason and Dixon's line, from the Atlantic to the Pacific, and having for twenty-five years been actively engaged in breeding grade stock, I have been compelled to learn a few things by experience, the principal one being that the demand is stronger for the great, big, smooth (or reasonably so) type of dense fine-wool, heavy-shearing sheep.

These small-bodied, heavy-shearing, short-wool Merinos, having enough hide to wrap three or four sheep like its owner into, won't do, gentlemen, for business. They may be needed in few numbers to hold certain characteristics by occasionally throwing in a certain cross in a judicious way, but if you will look among the breeders you will find the ones breeding that kind are the ones who are wondering why they don't sell. They don't sell to the

range man because he is the last individual on earth who wants that class of stuff, with its weakened constitution and inability to suckle even its own young, if they are sufficiently fortunate to have enough vitality to get up after being dropped. He must have something vigorous, hardy, strong, "get-up-and-git" kind that is capable of taking care of itself under any and all kinds of conditions. The individual small farmer does not want them because they are too much trouble, and he has but one product to market (wool), and that makes him sour when he sells it because the buyer will not pay him within several cents per pound of the prices paid his neighbors. His lambs are weaklings, and only 50 or 70 per cent. saved, while his neighbor has 100 per cent. or more from his big, strong, smooth ewes of fine-wool blood, which are just as pure bred, too, as his, and sells his wool readily at strong prices, weighing about as much and frequently more than the neigh-



"A Good Useful Kind"

bor with the little wrinkle sheep with long toes and frequently clubfeet, unless he, perchance, gets some "thistles" in their feet and is compelled to trim early and often.

Gentlemen, the small wrinkly kind may do to breed as a hobby, but they won't do to make money with which to maintain our families, educate our children and pay our taxes, and I cannot recommend them as the practical sheep for the present day and under existing conditions. As before stated, the mutton form and large size of carcass bearing a dense fleece of long, white (or slightly golden) wool is the ideal for business purposes and will continue to be the kind demanded by the fellow who knows where the profit is.

It is not necessary to go back to the barelegged and bareheaded kind, by any means, because you have it in your power to produce the type of sheep needed and for which the greatest demand is to be in the future by the use of discretion in breeding with a breed of Merinos, which is just as pure blood Merino, even though the blood be separated for 100 years or more, and bred for size of carcass, until they have gone to almost as much of an extreme that way as the American breeders of certain types have gone the opposite. I mean the Rambouillet or French Merino, which have size of carcass and just the head covering needed on the American Delaine. That cross might well be called Delaine-Rambouillets. The Rambouillet or French Merino breeders are just as badly in need of your Delaine blood as you are in need of theirs, in order to shorten their legs and thicken their fleece, and if that cross be made Rambouillet-Delaines would be a very appropriate name indeed. The tendency

with both the Delaine and Rambouillet breeders is toward the same end, and their ideals are almost identically the same according to my observations in the show rings, for with my limited knowledge of types and pedigrees I confess that it is impossible for me to distinguish the best type of one breed from the best type of the other.

But there seems to be a serious obstacle in the way. I am informed that the present existing rules of pedigree precludes infusion of French Merino blood, and that it seems to me is to be regretted, and if I were a member of your association I would never cease hammering until that objectionable rule (to me) would be stricken out and allow breeders to use all the pure blood they wished from whatever source and not compel those who want to produce the best and most desirable type of prize winners to forget to close the gate to the pasture where their choicest flock of dams are grazing when a high-class ram of some other breed of Merino happens along the road. The minister's text might be better remembered and family prayers have more significance if some changes could be made in the breeding rules of the American Merino and Delaine Record Association.

It seems to me desirable to give the public what they want, and you have got to do that if you sell your stock at remunerative prices, and the sooner you make up your minds that such is the case the sooner you can commence gathering in more shekels.

Now, gentlemen, let's have more Delaine sheep of large size; please do. Let's not be afraid of tainting the blood of our flocks with blood which might be so easily infused and produce so quickly the desired kind and at the same time retaining the best

Merino blood of hundreds of years of breeding. Let's broaden out and do the thing we should do *now* and not wait until it is forced on us, which will come just as sure as the Merino-Delaine-Rambouillet sheep continues to exist, and when you get the big mutton Delaine as a fixed type you will have the Delaine which is the money maker, and "money makes the mare go."

One more chastisement is due this association, and that is for not obtaining a class and exhibiting at the International Exhibition at Chicago the past season of 1907.

I followed up and down the corridors of the exhibition buildings, where there were acres of Rambouillets,

Shropshires, Southdowns, Cotswolds, Oxfords, Licensers and others, but not an American Merino Delaine to be found. Upon inquiry, was told that your association was not exhibiting, and I wondered why, and am still wondering why. You lost an opportunity which you could not afford, to exhibit your great breed to the world once more and show that you have it in your power to produce the greatest and best wool-mutton sheep, when properly bred, on earth. But when you exhibit next fall, which I am sure you will do, take the big, smooth ones and show the range men and the world that the Delaine sheep, properly bred, is really and truly the money maker.



A Good Beginning

SHEEP LORE.

(Continued from page 4.)

hotly rebukes the intruding shepherds, cuffs one, takes the rope in his own hands and draws water for the flock till the last lamb has had its fill. Then, with courteous, low-sweeping bow, he retires again to the shade of the date palm, and the girls, wondering and looking backward, take their flock and go homeward. Behind the square house of adobe bricks is a little corral of thorn enclosure. Here the flock is penned. Then the father, astonished, asks, "Why, daughters, how come you home this early?" And the girls eagerly reply: "Why, father, such a wonderful thing happened at the well. A stranger, an educated, courteous, beautifully dressed gentleman, came and drove away the rude shepherd boys when they would not let us water our sheep, and himself drew the water till every lamb did drink." "Where, then, is this stranger now?" "We left him sitting under the date palm beside the well." "And be- thought you not what courtesy is due a man who has done this much for you? Fie upon you! Got at once, I command you" (to the older daughter), "and bring him home with you, that I may thank him and that he may break bread with us."

Demurely the maiden goes down the warm trail; demurely she salutes the grave but handsome stranger; she repeats her father's command; the man arises, smiles, revealing great beauty of face in its lighting, bows acquiescence, and together, she in front, they go up the trail to her father's house, a strange commotion in her maiden's heart, a new, strong throb in his. For forty years this young Egyptian abode in that house; he married that girl; he cared for the flock. And there, on the

slopes of that glorious mountain, while the placid sheep nibbled the desert forage around him, he stood and dreamed, dreamed of a people in slavery, his people, his brethern, dreamed of their strength could they be united, dreamed of leading them away into the wilderness and through the desert to a land of which he had heard, a goodly land, where rains fell and grass was good and cows came lowing to their calves with swelling udders, and flowers there were with bees that stored honey in the rocks. Thus was born within young Moses the idea of delivering his people, Israel. The same life exists in exactness today. I have seen the scene enacted over and over in desert lands. In Mexico one can see it; in Arabia, in Palestine. Men come, men go; sheep come, sheep go, but the life of the sheep and of the shepherd in the deserts, where first sheep were made man's companions, goes on, the same yesterday, today and forevermore.

LITERATURE ON SHEEP.

(Continued from page 11.)

lish-speaking countries. It is on a well established basis, and no well informed sheep breeder or feeder can afford to be without it. Another publication devoted to sheep, *The Shepherd's Criterion*, is also made up at Chicago. This is an excellent and beautifully illustrated monthly of comparatively short life up to this time, but which, it is hoped, will have a long and successful career.

More or less sheep literature has been published by our American agricultural experiment stations. Information of special value on this subject has come from the Wisconsin, Minnesota, Michigan and Colorado stations, notably that of Wisconsin,

THE AGRICULTURAL STUDENT

ED. KINNEY Editor-in-Chief
J. O. WILLIAMS. Business Manager

Associate Editors

R. C. Collison	C. E. Snyder
M. D. Moore	H. E. Allen
R. M. Wilber	A. H. McCray

A P R I L

This issue is gotten out entirely by Professor Williams, assistant in animal husbandry, and R. M. Wilber, '09, a member of The Student staff. The value of such a number is apparent to all who realize the importance of Ohio as a sheep state. Not many years ago Ohio was the leading state in this industry, and even now she is outranked by few other states. Certainly no branch of live stock breeding is more important to Ohio farmers than that of sheep.

The reorganization of the Ohio Sheep Breeders' and Wool Growers' Association recently is a manifestation of the interest which Ohio men are taking in the sheep business. Mr. J. E. Wing was elected president, A. A. Bates vice president, and H. P. Miller secretary, and the board of directors were made up of one member from each county in the state. Ohio has more sheep breeders than any other state and should have one of the strongest state associations in the Union. Any one interested in uplifting the sheep interests of the state should send to the secretary, H. P. Miller, Westerville, Ohio, \$1 for membership and first year's dues. Constitution and by-laws are being printed and will be distributed soon.

It seems evident now that the sheep-man must take less for his wool this year than he did last. The reason for this is two-fold—the manufacturers are well stocked with last years' product and the banks are less free with their money to those who would speculate. This being the year for presidential election may also affect the situation to some extent. Manufacturers have their store houses full and a big line of manufactured goods which they have no outlet for. Until the market for woolen goods can be started to rolling the wool grower must sit back and wait if he expects to obtain a good prices for his product. The recent flurry in the money has caused a tightening up of the banks and speculators find more trouble to obtain money with which to buy.

It seems evident that there will be more consigning of wool this year than formerly and that the producer and speculator will wait for better prices which they will hope to obtain when the money market becomes settled and will take the chance of the election going the right way.

The past winter must have been of deep interest to the close student of live stock markets. Probably we shall not soon see as varied and complex conditions. In the early fall everything was sailing along smoothly with high-water mark sighted in trade values. The market boat struck upon the hidden rock called the financial flurry and the business was left to flounder around in stunned conditions. The whole bottom was knocked out of the live stock trade, yet sheep were the least effected of all our farm animals. There were several factors that contributed to sustain sheep value at that

time. Probably the chief reason why the sheep market is more steady and uniformly higher than horses, cattle and swine during hard time is due to the fact that the wealthy and independent classes are practically the only mutton consumers, and these people are so fond of their toothsome, wholesome, nutritious mutton chops and lamb that they demand this necessary article of diet and are willing to pay well for it. Such a condition of affairs are gratifying to the producer and should stimulate him to bend every effort to produce the right kind of mutton for this exacting trade.

Anybody who has been studying our markets must have been struck with the small number of sheep being marketed and the upward tendency in prices. Packers and shippers want more sheep and they have to go down in their pockets and pay well for everything they can get. Ewes, wethers, yearlings and lambs, with or without wool, are bought up with celerity. Lambs have crossed the eight-cent mark, and all other sheep are relatively high. Never before in the history of sheep, except for famine or war purposes, have they been in such demand as the last two years; and the end is not yet. Unless we read the signs wrongly, sheep and wool cannot fall much in prices in America. We are short of these products and the newly created demand for mutton must be supplied.

It will be of interest to many to know that Prof. E. T. Shaw, '02, whose contribution we present on another page, has charge of the sheep and goat work for the government. Before taking up this work he had charge of the Animal Husbandry and

Experiment Station work at the New Hampshire College. He spent several months of last summer visiting the leading flocks on the ranges of the West.

NEWS ITEMS.

The New Officers of The Student and the Agricultural Society.

At the March meeting of the Agricultural Society the annual election of officers was held. The new president of the society is W. L. Elser, '09; vice-president, L. L. Scott, '09, and secretary-treasurer, H. E. Evans, '09.

C. E. Snyder, '09, was elected as editor of The Student for the next year, and H. E. Allen, '09, as business manager.

The new editor and business manager assume control of The Student at once, under the direction, however, of the old editor and business manager for the rest of this school year.

J. O. Williams, a member of this year's class and business manager of The Student, is now in the employ of the Bureau of Animal Industry, U. S. Department of Agriculture. Mr. Williams will be back in June to take his degree.

Ed Kinney, a member of this year's class and editor of The Student, has accepted a position as assistant entomologist at the Kentucky Experiment Station. He will leave for his work at once.

R. A. Postle is now engaged in raising Cheviots and Yorkshires on his father's farm, a few miles west of Columbus.

Three corn and alfalfa trains were run in the latter part of March, one from Columbus to Circleville, one from Amanda to Morrow over the C. & M. V., and one over the T. & O. C. to Toledo. The interest shown at almost every stop was indeed encouraging to those instigating the work. A great many farmers were awakened to the fact that agriculture is progressing fast—faster, perhaps, than they had realized, and they will bestir themselves accordingly. Such trips cannot but result in a great deal of good by keeping the farmers in touch with the University and the Experiment Station, the centers of advance in their own line.

The Ags. will have a baseball team this year. "Jim" McKee has been elected manager, and under his management we hope to see the Ags. finish near the top of the league which has been formed among the six colleges.

The Dairy Department has recently installed a machine for testing the number of germs in milk.

James Vernon Hyatt, '05, has accepted a position as manager of the Waddington Farm, Elm Grove, W. Va. He has charge of the Suffolk horses and the sheep.

J. Degenfelter, who has completed the Short Dairy Course, is now employed in the Dairy Department.

F. E. Meeks, of this year's Dairy class, has taken charge of a creamery at Sharon, Pa.

Professor Gibbs, president of New Hampshire A. and M. A. College, recently visited the University.

C. W. Burkett, '95, formerly director of the Kansas Agricultural Experiment Station, is now with the Orange Judd Co., in the office of The American Agriculturist.

J. W. Hammond, '06, is taking post-graduate work in the University of Illinois and assisting in animal husbandry in the Agricultural College. Mr. Hammond's thesis is in animal nutrition, and in this connection he is feeding Western lambs.

The Agronomy Department is plowing up the north campus, preparatory to planting variety tests of the more important field crops and breeding plots of alfalfa and several clovers and grasses.

The Kellerman naturalist party returned from Gautamala at the close of the Winter Term, where they were engaged in botanical and entomological work. The trip was rewarded by many hundred new specimens to the already large collection of Gautamalan plants at the University. The explorations might be divided into two parts, first, those in the desert regions, where the cactus and many other xerophytic plants were studied; second, in the low tropical regions where the palms and many other jungle plants were studied and collected. Special attention was paid throughout the trip to the mycology of the country, and it is with much regret that we announce the death of Dr. Kellerman, who had planned and made the expedition what it was to his students.



Waiting for the Sheep

STUDENT DAYS

Are just the time to investigate the merits of advanced farm machinery.

You know the kind now being used at home can be improved upon!

Your college experience will teach you the great advantages of improved dairying machinery and above all the merits of the cream separator.

Your Opinion

Will be appreciated at home and looked up to.

So investigate the merits of our

NEW IOWA Cream Separator

It has several different features that cannot be found in any other cream separator.

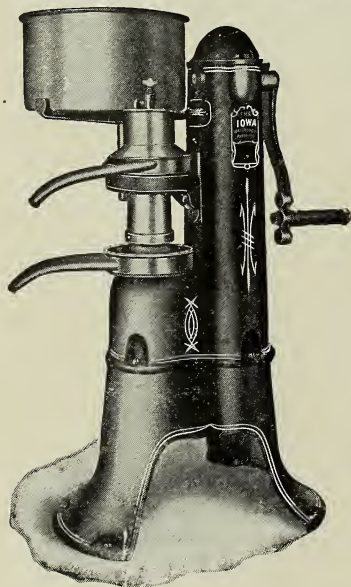
For instance our new self-centering neck bearing! unsurpassed in simplicity, durability and effectiveness. Our new throwing out of gear device, situated where it saves two thirds of the wear on the machine, is the most remarkable separator improvement this year.

Our low form of construction, placing all the working parts low in the machine, insures it much longer life than is possible with any other cream separator.

It's dust proof gearing; two core bowl, giving it the most remarkable skimming device on earth; easy cleaning; easy running; all contribute toward making the New Iowa the best cream separator to buy.

The perfect construction of the machine and the splendidly equipped factory that builds it, largest in the world, make an invincible argument for every farmer owning a New Iowa.

It is the machine that you will want on your farm.



SEND FOR CATALOG TODAY.

Investigate our claims and statements, then recommend our machine to your folks and friends.

Address us now,

IOWA DAIRY SEPARATOR CO.

197 Bridge St.,

WATERLOO, IOWA.

NOTE. We are continually looking for capable young men to sell our machines in that territory. You can earn your way by selling our separators. Just write us now if you are interested.

Live Stock Feeders and Shippers

Anything that affects a man's pocketbook touches him in a vital spot, hence if you are a feeder or shipper of live stock the selection of a commission firm to handle your consignments ought to be a pretty interesting subject to you.

Are you sure that you are getting the very best service in the handling of your live stock? Anyone can sell live stock, but only a very few of the best and highest-paid salesmen in the business have that broad and intimate knowledge of men and market, that inborn talent for trading, that count so heavily in the shipper's favor.

Those that are so equipped stand at the head of their profession, and are the sort of salesmen which compose our staff. They know how to get "the last nickel"—and IT'S THE LAST NICKEL THAT COUNTS.

R. B. Wyatt, Reserve, Kansas, writes our Kansas City house: "I want to thank you for the interest you took in selling my yearlings. You certainly worked hard to get that other nickel, and I am well pleased and appreciate same."

W. B. Widman, Bigelow, Minn., writes our Sioux City house: "Your sale of car of hogs made for me was very satisfactory. They were well sold considering the condition of the market. I hope some time to have more stock for you to sell for me. I know you are very competent to get good returns for all hogs I may ship to you."

F. W. Merrill, Kaneville, Ill., writes: "I am well pleased with your sale of my cattle. They were on feed only ninety days and gave me a margin of \$1.85 per cwt. I consider them well bought and well sold and shall consign my next shipment to Clay, Robinson & Co."

Lonnie Rummel, Swanton, Indiana, writes: "I am this morning in receipt of the load of lambs you bought for me and am well pleased with them. They surely are a good lot."

B. B. Baker, Monticello, Indiana, writes: "I wish to thank you for the last two cars of feeding sheep you sent me. They were exactly what I wanted. I think this last lot made you some customers in this vicinity as two parties have promised me to order from you."

IF YOU ARE FEEDING STOCK FOR MARKET, OR ARE
THINKING OF BUYING STOCKER OR FEEDER CATTLE
OR SHEEP, WRITE US AT YOUR NEAREST MARKET

CLAY, ROBINSON & CO.

LIVE STOCK COMMISSION

CHICAGO
DENVER

SOUTH OMAHA
SO. ST. JOSEPH

KANSAS CITY
SIOUX CITY

EAST BUFFALO
SO. ST. PAUL

AMERICA'S LEADING HORSE IMPORTERS

At the recent International Live Stock Exposition, held in Chicago November 30th to December 7th, Stallions imported by us won as follows, being the only classes in which we exhibited.

PERCHERONS

Four Years Old and Over	.....	1st.		
Three Years Old and Under Four	.....	1st.	2nd.	4th.
Two Years Old and Under Three	.....		2nd.	5th.
Produce of Mare	.....			1st.

Champion Stallion.

Reserve Champion Stallion.

Champion Group of Five Stallions owned by one exhibitor.

FRENCH COACH

Four Years Old and Over	.....	1st.	2nd.	3rd.
Three Years Old and Under Four	.....		1st.	2nd.

Champion Stallion.

Reserve Champion Stallion.

Champion Group of Five Stallions owned by one exhibitor.

THE CHAMPION STALLIONS OF BOTH CONTINENTS
ARE FOR SALE AT OUR STABLES

McLAUGHLIN BROS.

Kansas City, Mo.

Columbus, O.

St. Paul, Minn..

The Columbus Railway and Light Co.

The Car Service

Cannot be excelled by any Street Railway in a city of like population. All lines center in the heart of the city and extend in all directions to the suburbs. The lowest rates of fare of any city in the United States. Trolley parties specially cared for by chartered cars.

OHIO STATE
UNIVERSITY IS
REACHED DIRECT
BY EITHER
HIGH STREET
OR
NEIL AVENUE
LINES



THE LOWEST
FARE IN
THE COUNTRY.
TRANSFERS
TO ANY PART
OF THE
CITY

Every State Institution.

Hospital, Cemetery, City Park, Hotel, Depot, Principal Business House, and all the various points of interest to be desired are reached or passed by cars of this Company. Operates and controls the lines to Westerville and Arlington. The latter are delightful suburban rides.

FRANK C. KELTON.

WADE CONVERSE

Kelton & Converse,

Dealers in

Lumber, Lath, Shingles.

Doors, Sash, Blinds,

Door and Window Frames,

Mouldings, Etc.

Cor. Spring and Water Sts.

COLUMBUS, O.

Telephone No. 2279 and Main 279

**BLACKWOOD,
GREEN & CO.**

HARDWARE

STOVES AND HOUSE
FURNISHING GOODS.

SLATE and METAL ROOFING

624 North High Street,

Columbus, Ohio.



Chr. Hansen's Danish Rennet Extract
Danish Cheese Color
Rennet Tablets Cheese Color Tablets
Dry Latic Ferment

The products of Chr. Hansen's Laboratories
at Copenhagen, Denmark and Little Falls, N.Y.
are universally recognized as



**WORLD
STANDARDS**



Chr. Hansen's Danish Butter Color is strictly
Vegetable, Pure and Strong.

Rennet Tablets and Cheese Color Tablets
expressly for Cheese Making on the Farm.

Chr. Hansen's Dry Lactic Ferment ensures
Perfect Aroma and Keeping Quality in Butter
and does away with gassy curd in Cheese
Making.

Chr. Hansen's Laboratory
Box 1074 LITTLE FALLS, N. Y.

BERNARD W. PAYNE

MORTON McDONALD

**Payne=McDonald
Hardware Company**

1204 North High Street

Automatic Telephone 5746

DISCOUNT TO STUDENTS

**See Doc Levison for
Fine TAILOR MADE Suits**

STUDENTS will receive a cordial welcome at KILER'S. Headquarters for
everything needed by the STUDENT.

Two { 11th Ave and High St.
Stores { 8th Ave and High St.

A. W. Kiler, Ph. G.

**THE BEST LIVE STOCK
INSURANCE IS**

CHLORO-NAPHTHOLEUM DIP

**NON-POISONOUS
NON-CAUSTIC**

**Endorsed By Ohio Agricultural Experiment Stations
Permitted for Official Dipping for Sheep Scab**

A sample of **Chloro-Naphtholeum Dip** has been submitted to the Department of Agriculture for examination. We guarantee the contents of each package to be of the same composition as the sample submitted to the Department, and when diluted according to the directions printed on the can for the treatment of sheep scab, it will give a dipping fluid of the composition required of a coal tar cresotic dip by the regulations of the Secretary of Agriculture governing sheep scab.

C U R E S Mange
Scab
Wounds

K I L L S LICE
TICKS

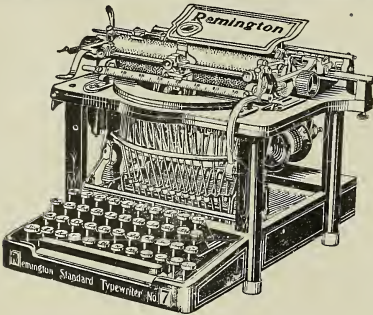
PREVENTS HOG CHOLERA

WEST DISINFECTING CO., Inc.

12 East 59th Street

NEW YORK

SEND FOR FREE BOOKLET



THE
**REMINGTON
TYPEWRITER**

Is the standard of the world by which

All others are Measured.

REMINGTON TYPEWRITER CO.

[Incorporated]

49 North High Street

COLUMBUS, OHIO

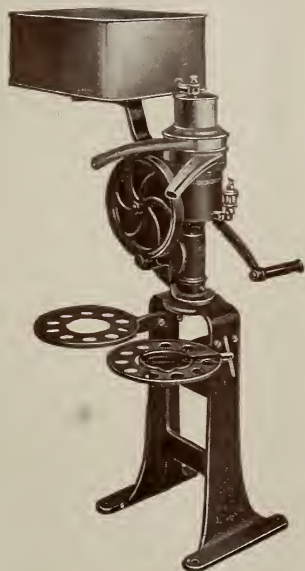
THE CO-OP STORE

Every book used in the Agricultural Department.
DRAWING MATERIAL.
MEN'S FURNISHINGS.

We are complete outfitters of all plants for handling milk products. If you are in the dairy manufacturing business in any capacity and want to keep up with latest and best methods, or if you are thinking of going into it, the first thing to do is to get into communication with us. We are at your service in the planning, building and equipping of Creameries, Cheese Factories, Sanitary Milk Plants and Private Dairies. Our experience in this line is worth money to you, yet it costs you nothing but the asking.

CREAMERY PACKAGE MFG. CO.
182 TO 188 E. KINZIE ST.
CHICAGO

WHICH WOULD YOU BUY?



An old style mechanically balanced Cream Separator, or a

Self Balancing "Simplex" Link Blade System

Investigate and there can be but one answer.

Smallest Bowls,

Lowest Speeds,

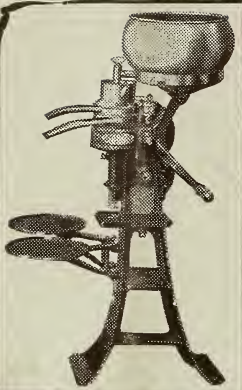
Fewest Parts,

Lightest Running, Closest Skimming.

The only Self Balancing Separator on the market.

D. H. BURRELL & CO.,

Little Falls, N. Y.



IMPROVED IN EVERY FEATURE

Have you seen and examined the New and Improved 1908 DE LAVAL Cream Separators? If not, and you own one or more cows don't further hinder your best interests by delaying longer, but let us give you a free demonstration in your own home at once. You will marvel at the mechanical perfection, the wonderful simplicity and convenience of these new machines. These new machines show improvements in every feature, from the supply can to the base of the machine, and mark the greatest move forward in separator construction since the invention of the first practical separator by Dr. De Laval in 1878. If you have milk cows you cannot afford to be without one. The new De Laval skims closer, has greater capacity, operates easier and is more ideal in every way than De Laval machines have been even in the past. The improved De Laval is actually ten years in advance of any other separator made today. There are ten new styles, ten new capacities and ten new prices. There is a machine for every dairy, from the smallest to the largest and at a price that will fit every pocket. Don't regret later that you didn't see the De Laval before you bought a machine, but write us today for our handsome new catalogue describing the machines in detail and a free demonstration in your own home. You will be surprised. Don't delay.

THE DE LAVAL SEPARATOR CO.

RANDOLPH & CANAL STS.
CHICAGO

1213 & 1215 FILBERT ST.
PHILADELPHIA

DRUMM & SACRAMENTO STS.
SAN FRANCISCO

General Offices:

74 CORTLANDT STREET,
NEW YORK.

173-177 WILLIAM STREET
MONTREAL

14 & 16 PRINCESS STREET
WINNIPEG

107 FIRST STREET
PORTLAND, OREG.